Remarks

Applicant respectfully requests reconsideration of the application.

Applicant again acknowledges the provisional obviousness type double patenting rejection relative to Application No. 10/677,092. However, since the cited application has still not been issued as a patent, this rejection remains provisional and does not prevent this application from being issued. Applicant's representative will address the rejection in the application that remains when at least one of the applications has been granted.

As an update to related application information provided earlier, the Examiner is directed to the May 13, 2008 non-final action in 10/677,092 and the Appeal Brief filed recently in 10/942,321.

Claim 7 is rejected as allegedly not reasonably providing enablement for all encompassed laser enhancing additives within the recited second laser enhancing additives. MPEP Section 2164.08 deals with this issue of "Enablement Commensurate in Scope With the Claims."

First, the Office improperly focuses on a single element of claim 7 (second laser enhancing additives) rather than considering the claim as a whole. As stated in the MPEP, the determination of the propriety of a rejection based upon the scope of a claim relative to the scope of the enablement involves two stages of inquiry. The first is to determine how broad the claim is with respect to the disclosure. The entire claim must be considered. The second inquiry is to determine if one skilled in the art is enabled to make and use the entire scope of the claimed invention without undue experimentation.

The Office apparently fails to recognize that the element of the second laser enhancing additive is supported not only by the disclosed examples in the specification, but also what is known to one of ordinary skill in the art because it is only one element of a novel combination. The intent of the claim is to cover the novel combination of elements of claim 7, and it is entirely permissible for some of the elements to be taught by the disclosure explicitly as well as what is known by one of skill in the art. The specification clearly teaches that certain of the disclosed laser enhancing additives may be combined with other laser enhancing additives that are also disclosed or that are known. See for example, page 21, which states:

> The inventive laser enhancing additive can be present in a material, such as a laminate, at the same time that other compositions (e.g., other laser enhancing or absorbing additives, reinforcing fillers, antioxidants, flame retardants, stabilizers, plasticizers, lubricants, dispersants, and the like) are present in the same material and/or a separate layer of material

The Office's allegation that the second laser enhancing additive element encompasses an infinite number of compounds is inaccurate and establishes an improper test that virtually no patent for an article of manufacture or composition can satisfy. The number of compounds is not infinite because the additive must be a "laser enhancing additive." The specification provides sufficient guidelines regarding the meaning of "laser enhancing." For example, page 7 of the specification states that the laser enhancing additive is one that increases sensitivity to a laser as follows:

> The inventor of the instant application has found that laser engraving of some types of materials, including materials that are not easily engraved (such as laminated TESLIN core ID documents), can be improved by increasing the sensitivity to laser radiation of a laminate used with the material and/or increasing the sensitivity to laser radiation of a coating applied to the material.
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> One inventive technique disclosed herein improves the material being laser marked or laser engraved by introducing inventive laser enhancing additives to the material. The material can be a laminate, a coating, or an article having a laminate or coating formed thereon. These additives facilitate material sensitivity, greatly improving the ability to laser engrave laminated ID documents.

To the extent understood, the position that a particular claim element could theoretically be made from an infinite combination of compositions would virtually apply to any patent for an article of manufacture or composition because any material could theoretically be broken into infinite combinations of matter with varying amounts of molecules of substances. Thus, this is clearly not the test that is stated in the law and outlined in the MPEP.

The phrase "laser enhancing" provides an appropriate descriptor for the term "additive." Moreover, the specification provides adequate teaching about such materials to enable one of skill in the art to use disclosed additives with other disclosed additives and known additives.

The cases dealing with problems of enablement commensurate with the scope of the invention deal with the scope of the invention over all, not the scope of an individual

element. This is clearly not a problem in this case because the broader claim 1 is not alleged to have the problem of not having an enabling disclosure commensurate with the claim scope. Since claim 1 necessarily is broader than dependent claim 7, it too would have to be impermissibly broad for enablement because it theoretically includes an infinite number of second additives as well. Nevertheless, when the claim is properly viewed as a whole, it is properly enabled.

The specification provides additional context for laser enhancing additives along with a number of examples that provide sufficient teachings to one of skill in the art to make and use the invention of claim 7 commensurate with its scope.

For example, page 20 states:

> In at least one embodiment, use of any of the above laser enhancement formulations improves the quality of the laser engraving by increasing the contrast, (including at least dark colors on light backgrounds) that can occur when using a laser having a given power level. In at least some embodiments, the increased contrast resulting from use of one of the above-described laser enhancing additives may enable the laser engraving to be accomplished using a lower-power laser than would need to be used without user of the laser enhancing additive. It at least some embodiments, the increased sensitivity resulting from use of one of the above-described laser enhancing additives may reduce the time necessary to accomplish the laser engraving.
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> In accordance with at least some embodiments of the first aspect of the invention, any of the above-described inventive laser enhancing additives can be added to virtually any material (including all known thermoplastics and thermosets) to enhance the process of laser marking and/or laser engraving of either the material to which the inventive laser enhancing additive is added or any material disposed substantially adjacent thereto. Advantageously, the addition of the inventive laser enhancing additive enables whatever material(s) it has been added to be laser engraved with a grayscale image.

Claims 4-6, 8 and 10 are rejected as being indefinite.

A. Regarding claims 4-6 and 10, these claims recite "a first laser enhancing additive" which comprises the first and second quantities, but not the host material. The punctuation is amended in claim 1 to leave no doubt that the host material is not included in the first laser enhancing additive.

B. In claim 8, the phrases, "whitish polycarbonate" and "substantially white polycarbonate" are believed to be clear, but this language is simply deleted. These polycarbonates are encompassed in the claim scope through the term polycarbonate.

C. Further regarding claim 8, certain terms are simply deleted as being encompassed in other terms remaining in the claim.

D. Regarding claim 15, vinyl polymers are intended.

Claims 1-15 and 26 are rejected under 35 U.S.C. Section 103(a) as being unpatentable over the combination of U.S. Patent No. 5,840,142 to Stevenson et al. (Stevenson), U.S. Patent No. 5,374,675 to Plachetta et al. (Plachetta) and U.S. Patent No. 5,075,195 to Babler et al. (Babler).

The applied combination fails to disclose laser enhancing additives as claimed, and in particular, does not disclose: "a first laser enhancing additive, the first laser enhancing additive comprising a first quantity of at least one of copper potassium iodide ($CuKI_3$) and Copper Iodide (CuI)" in combination with the other elements of claim 1. Similar arguments apply for claim 26.

Stevenson refers to colorants, including barium sulfide. It provides no teaching regarding laser engraving and is not readily combinable with Plachetta and Babler for reasons detailed further below.

Plachetta teaches a thermoplastic molding material including various components. The Office cites col. 3, lines 60-61 as allegedly teaching the first laser enhancing additive. However, this passage refers to the use of copper halides, including for example, copper iodide, as antioxidants or heat stabilizers. While Plachetta teaches a thermoplastic molding material that is suitable for the production of laser inscribable moldings, it does not teach that copper iodide has anything to do with laser inscribing. The molding in Plachetta can be laser inscribed with or without the use of anti-oxidants or heat stabilizers. Plachetta teaches that it is also trying to achieve a molding that has good mechanical and processing properties. Col. 1, lines 35-46. To this end, Plachetta recommends the use of anti-oxidants, which make the material resistant to oxygen attack, and a heat stabilizer, which make the material resistant to heat induced changes. Copper

iodide is only mentioned in the context of these conventional anti-oxidant and heat stabilizer properties. Both of these properties teach away from the use of copper iodide as a laser enhancing additive for laser engraving.

The specification of Applicant's patent application refers to antioxidants and stabilizers at about page 21, line 5 as being different from, yet potentially used in combination with the recited laser enhancing additives. Clearly, Applicant viewed antioxidants and stabilizers as playing a separate and distinct role from the recited laser enhancing additives. One of skill in the art would clearly see from the Applicant's reference to an antioxidant and stabilizer that it was not intended to be a laser enhancing additive.

Plachetta teaches that this antioxidant is one of many fibrous or particulate fillers. Plachetta describes that these fillers are a component of the thermoplastic resin from 0 to 69.995% by weight, which is different than and does not provide helpful teaching regarding the claimed range recited in claims 4-6 and 10.

Plachetta also fails to provide any teaching or suggestion regarding laser engraving grayscale images as set forth in claims 9 and 10. The Office appears to suggest that Plachetta's teaching might encompass such gray scale engraving, but there is no such teaching in Plachetta of an additive with sensitivity to allow for gray scale image engraving.

Finally, Plachetta is silent regarding the thermoplastic molding as a coating or laminate as set forth in claims 11 and 12, respectively.

Babler teaches the use of molybdenum disulfide as an additive for laser marking. Nevertheless, Babler provides no suggestion of the claim elements missing from Plachetta. Moreover, there is no basis for combining Plachetta's teaching regarding antioxidants with Babler's teaching of molybdenum disulfide for laser marking because antioxidants and stabilizers serve a distinctly different purpose than acting as a laser enhancing additive as claimed.

The rejections of claims 1-15 and 26 are all based on a combination of Stevenson, Plachetta and Babler. An obviousness inquiry requires consideration of the level of ordinary skill in the pertinent art at the time of the invention. Please see Graham v. John Deere, 383 U.S. 1, 17-18, 148 USPQ 459, 467 (1966). We respectfully submit that one

of ordinary skill in the art at the time of invention would have an understanding of laser engraving technology and would appreciate the difference between antioxidants and laser enhancing additives. Moreover, one of ordinary skill would find no useful teaching in Stevenson regarding laser enhancing additives because it is totally irrelevant to laser marking.

We further submit, given the above level of skill, a laser marking artisan would not instinctively consult Stevenson because it's teachings of certain colorants is irrelevant to laser marking, nor the Plachetta techniques for using copper oxides as antioxidants because these copper oxides are used for an entirely different and conflicting purpose. In particular, the oxides are used to prevent yellowing in response to oxygen, whereas the claimed laser enhancing additives are used to create markings in host polymers. The Office Action fails to establish whether it was commonplace for a laser marking artisan to employ antioxidants for enhancing sensitivity of host polymers for laser engraving. In contrast, the specification of the application makes a distinction between antioxidants and laser enhancing additives. There is no known, unifying problem with a predictable solution encouraging the use Stevenson's teachings about colorants with laser enhancing additives as claimed. Plachetta and Babler both relate to laser marking, but one cannot fairly state that Plachetta or Babler teaches the claimed copper based composition for laser enhancing as claimed. Thus, the combination of the two still does not teach it.

If a laser marking artisan did consult Plachetta and Babler, Plachetta would teach away from the use of the antioxidant as a laser enhancing additive as claimed.

The teachings of the cited references of Plachetta and Babler on the one hand, and Stevenson, on the other, are not compatible because Stevenson is irrelevant to laser marking. As such, there is a lacking of sufficient "interrelated teachings of multiple patents" to support the combination. Please see KSR Int'l Co. v. Teleflex, Inc., No. 04-1350 (U.S. Apr. 30, 2007), slip op. at 14.

Given the knowledge possessed by a person of ordinary skill in the art, additional knowledge or invention needed to combine the references as suggested in the Office Action, and the incompatibility of the references, there is not "an apparent reason to combine the known elements in the fashion claimed . . . ." Please see KSR, slip op. at 14.

Thus, the Office Action fails to establish a prima facie case of obviousness.

Respectfully submitted,

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